

General Information

- Maintenance Free Batteries are replacing lead-acid batteries and batteries that require electrolyte maintenance and more frequent recharging.
- Eliminate the need for a sailor to handle and dispose of battery acid.
- This battery is a completely sealed, gel-type that should not leak even if the seal is broken.
- The battery is easy to use and install. It is encased specifically to inhibit at-sea corrosion and is able to withstand heavy shocks and vibrations.
- Output: CCA 800 amps, Cranking amps 1100 amps, 12 Volts.
- TM Number S9592-CS-CAT-010
- AELs: 620044190; 620044191; & 620044192



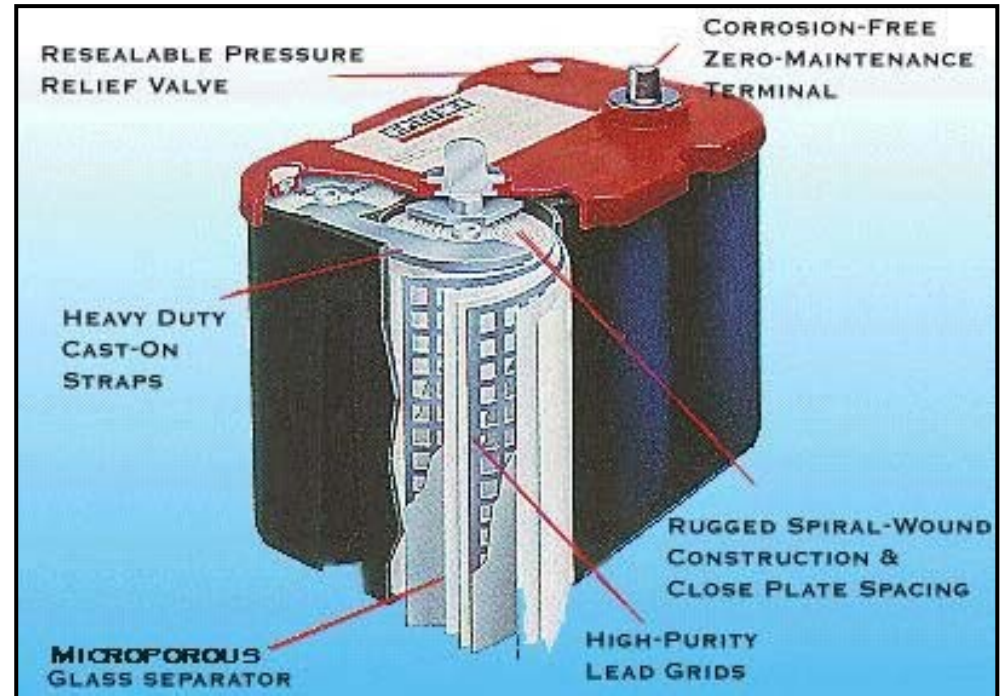
- Replaces the 6TL battery in RIBs, small boats and GSE (yellow gear)

Operational Information

- Recharging Power: 13.8-14.8 Volts, 10 amps. A completely discharged battery will be fully recharged in 5.5 to 6 hours.

Safety Information

- Do not overcharge. Overcharge will vent gas from the relief valve. If an overcharge is suspected, weigh the battery. Original weight 39.5 lbs.
- Any battery that feels warm or if the case is visibly damaged or distorted should be removed from charging immediately.
- Disposal is the same as for lead acid batteries.



Mercury Ion Exchange Cartridge System



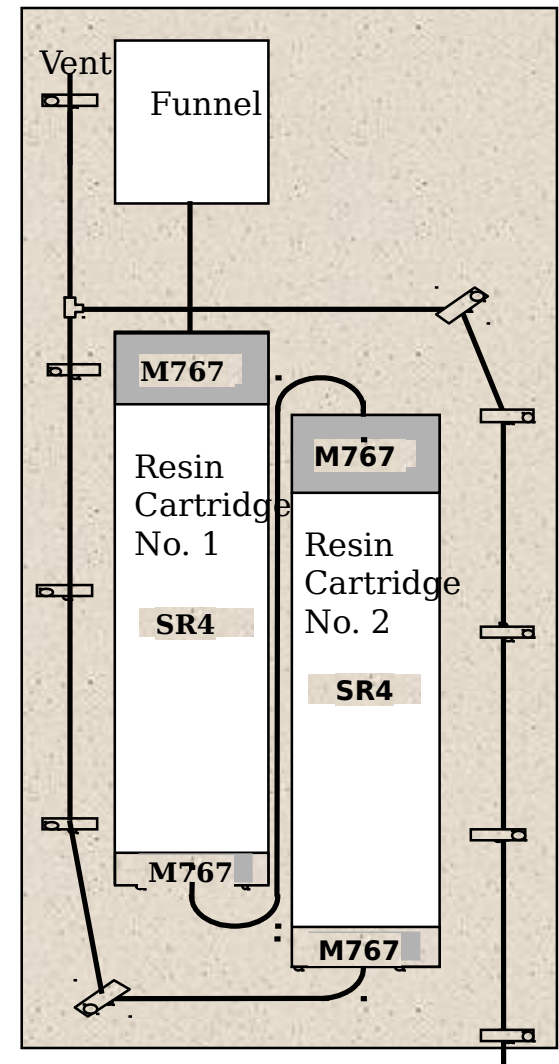
General Information

- Processes the mercury-contaminated waste water resulting from boiler feedwater and boiler water chloride testing.
 - Installed in the ships' Oil Lab where chloride testing is usually performed. Navy ships may generate as much as 85-gallons of mercury-contaminated wastewater per 6-month deployment.
 - Mercury-contaminated wastewater is generated during chloride testing, in which drops of mercuric nitrate are added to titrate the water sample. The resulting waste water can now be poured through a gravity-fed funnel into resin beds specifically designed for mercury absorption. As the wastewater passes through the resin bed, mercury is captured. The resulting effluent has been tested to have mercury levels less than 2 ppb (the legal limit for discharge).
- TM Number S9592-CS-CAT-010
 - APL: 469990293

Operational Information

The Mercury Ion Exchange Cartridge System Consists of:

- An inlet funnel and tubing to pour wastewater into resin-bed.
- The cartridges are connected in series with tygon tubing and polypropylene connectors. Each column is rated to absorb mercury from 300 liters of wastewater.
- The outlet tubing is routed to the graywater system via a sink in the Oil Lab.
- Slowly pour chloride analysis wastewater generated during the performance of Feedwater Chloride Testing as called out in Navy Ships Technical Manual S9086-GX-STM-020/CH-220 V2 Section 26.21 into the reservoir cup.
- Record the amount of liquid processed through the mercury ion exchange cartridge system in the logbook.
- Replace both cartridges every six months. Flush system with two liters of deionized water before replacing. Cap both ends of the expended cartridges using the end caps removed from the new cartridges. Turn the expended cartridges into the hazardous material coordinator for proper disposal.
- Record installation date and expiration date on cartridges on the new cartridges.
- When installing new cartridges, remove all air bubbles in the system using distilled water in





Safety Information

- Both cartridges must be replaced every six month, in accordance with PMS procedures, to prevent discharges above 2 ppb. One column usually will meet this requirement but the second column provides an adequate safety factor to ensure mercury is not present in concentrations greater then 2.0 ppb in the effluent.
- Dispose in accordance with OPNAVINST 5090.1 Series Environmental and Natural Resources Program Manual, Appendix L, *Disposal of Shipboard Hazardous Material*. This waste is listed as “boiler wastewater” in the column titled *Shipboard Hazardous Material Type*, and further defined as “feedwater and mercuric sample demineralizer resins” under the column titled *Examples of Generation Sources*. The authorized disposal method listed for used or excess ion exchange cartridges is “containerize for shore disposal as used hazardous material”.
- Wear proper PPE when handling the waste waste and when replacing the cartridges.
- Always ensure resin cartridges are wet before adding any waste water.

Reciprocating Saw

General Information

- The Reciprocating Saw provides an alternative method to using an acetylene torch for metal cutting. This machine reduces the quantity of acetylene and other compressed gases that must be procured and stored.
- TM Number S9593-CS-CAT-010

Operational Information

- The saw has a stroke length of 1 1/4 inches
- The unit comes with a 5-piece bimetal blade assortment that includes 2-4 inch and 3-6 inch metal cutting blades. Quick tool-less blade change feature.
- Electrical continuity of equipment has to be checked in accordance with ship's PMS.
- Orbital & Straight cut



Safety Information

- Reciprocating saw operators are required to wear safety goggles and/or face shields, protective coveralls, rubber gloves, and hearing protection.
- Disconnect from power source when installing blades.



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